CLAIM AMENDMENTS

41. *(Currently amended)* A method of increasing the proliferative capacity of a mammalian cell, comprising introducing into the cell *in vitro* a recombinant polynucleotide that encodes a telomerase reverse transcriptase protein, variant, or fragment having telomerase catalytic activity when complexed with a telomerase RNA,

wherein the polynucleotide hybridizes to DNA having a sequence complementary to SEQ. ID NO:1 at 5°C to 25°C below T_m in aqueous solution at 1 M NaCl;

61

wherein T_m is the melting temperature of double-stranded DNA having the sequence of SEQ. ID NO:1 under the same reaction conditions; and

whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell.

42. *(Previously added)* The method of claim 41, wherein the cell is a human cell.

43. *(Previously amended)* The method of claim 41, further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

44. *(Previously added)* The method of claim 43, wherein the cell is a human cell.

45. *(Previously added)* The method of claim 41, wherein the polynucleotide encodes a full-length, naturally occurring telomerase reverse transcriptase.

46. *(Previously added)* The method of claim 45, wherein the cell is a human cell.

47. *(Previously amended)* The method of claim 45, further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

48. *(Previously added)* The method of claim 41, wherein the polynucleotide encodes a telomerase reverse transcriptase having the amino acid sequence of SEQ ID NO:2.

49. *(Previously added)* The method of claim 48 wherein the cell is a human cell.

50. *(Previously amended)* The method of claim 48 further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

51. *(Previously amended)* The method of claim 50 wherein the cell is a human cell.

52. *(Previously added)* The method of claim 41, wherein the recombinant polynucleotide is an expression vector.

53. *(Previously amended)* The method of claim 52 wherein the expression vector is an SV40 virus expression vector, an EBV expression vector, a herpesvirus expression vector, or a vaccinia virus expression vector.

54. *(Previously added)* The method of claim 52 wherein the expression vector is a retrovirus expression vector.

55. *(Previously added)* The method of claim 52 wherein the expression vector is an adenovirus expression vector.

56. *(Previously amended)* The method of claim 52 further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

57. *(Previously amended)* The method of claim 52 wherein the cell is a human cell.

58. *(Re-presented — formerly claim 41)*
A method of increasing the proliferative capacity of a mammalian cell, comprising introducing into the cell a recombinant polynucleotide that encodes a telomerase reverse transcriptase protein, variant, or fragment having telomerase catalytic activity when complexed with a telomerase RNA,

wherein the polynucleotide hybridizes to DNA having a sequence complementary to SEQ. ID NO:1 at 5°C to 25°C below T_m in aqueous solution at 1 M NaCl;

wherein T_m is the melting temperature of double-stranded DNA having the sequence of SEQ. ID NO:1 under the same reaction conditions; and

whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell.

59. *(New)* The method of claim 58, wherein the cell is a human cell.

60. *(New)* The method of claim 58, wherein the polynucleotide encodes a full-length, naturally occurring telomerase reverse transcriptase.

61. *(New)* The method of claim 58, wherein the polynucleotide encodes a telomerase reverse transcriptase having the amino acid sequence of SEQ ID NO:2.

62

62. *(New)* The method of claim 58, wherein the recombinant polynucleotide is an expression vector.

63. *(New)* The method of claim 62, wherein the expression vector is a retrovirus expression vector.

64. *(New)* The method of claim 62, wherein the expression vector is an adenovirus expression vector.

65. *(New)* The method of claim 62, wherein the cell is an epithelial cell.

66. *(New)* The method of claim 62, wherein the cell is a keratinocyte or fibroblast of the skin.

67. *(New)* The method of claim 62, wherein the cell is a matrix, shaft, or stem cell of the hair.

68. *(New)* The method of claim 62, wherein the cell is a hepatocyte.

69. *(New)* The method of claim 62, wherein the cell is an endothelial cell.

70. *(New)* The method of claim 62, wh rein the cell is a retinal pigmented epithelial cell of the eye.

71. *(New)* The method of claim 62, wherein the cell is a c mentoblast, odontoblast, osteoblast, or chondrocyte.

72. *(New)* The method of claim 62, wherein the cell is an immune cell or lymphocyte.

73. *(New)* The method of claim 63, wherein the cell is an epithelial cell.

74. *(New)* The method of claim 63, wherein the cell is a keratinocyte or fibroblast of the skin.

75. *(New)* The method of claim 63, wherein the cell is a matrix, shaft, or stem cell of the hair.

76. *(New)* The method of claim 63, wherein the cell is a hepatocyte.

77. *(New)* The method of claim 63, wherein the cell is an endothelial cell.

78. *(New)* The method of claim 63, wherein the cell is a retinal pigmented epithelial cell of the eye.

G2

79. *(New)* The method of claim 63, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.

80. *(New)* The method of claim 63, wherein the cell is an immune cell or lymphocyte.

81. *(New)* The method of claim 64, wherein the cell is an epithelial cell.

82. *(New)* The method of claim 64, wherein the cell is a keratinocyte or fibroblast of the skin.

83. *(New)* The method of claim 64, wherein the cell is a matrix, shaft, or stem cell of the hair.

84. *(New)* The method of claim 64, wherein the cell is a hepatocyte.

85. *(New)* The method of claim 64, wherein the cell is an endothelial cell.

86. *(New)* The method of claim 64, wherein the cell is a retinal pigmented epithelial cell of the eye.

87. *(New)* The method of claim 64, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.

88. *(New)* The method of claim 64, wherein the cell is an immune cell or lymphocyte.